

In the Claims:

1. ( currently amended) A margarine ~~blend~~ and spread fat blend consisting of comprising 60 - 95% of a liquid oil selected from the group consisting of sunflower oil, Canola oil, soy oil, pea nut oil, rice bran oil, olive oil, safflower oil, corn oil ~~or~~ and marine oil, or ~~the~~ a blend of any of the above ~~liquids~~ liquid oils with a Trans free hard structural fat at 5 -40% level whereby the said hard structural fat is made from selectively fractionated non-hydrogenated palm oil fraction, which is interesterified with lauric fat such as dry fractionated non-hydrogenated palm kernel fraction without using hydrogenation process and without using organic solvent or detergent for fractionation.
2. (currently amended) A margarine/~~spread~~ and spread fat blend according to claim 1, ~~where~~ wherein the liquid oil blend has high poly/mono unsaturated level such that in the total fat blend the poly/mono unsaturation level exceeds 40%.
3. (currently amended) A ~~trans free hard structural fat~~ margarine and spread fat blend according to claim 1, wherein said trans free hard structural fat is produced without using hydrogenation process so that Trans fatty acid residue produced during the hydrogenation is eliminated.
4. (currently amended) A ~~palm fraction~~ margarine and spread fat blend according to claim 1, wherein said hard palm oil fraction has a C16 carbon chain residue greater than 70%.
5. (currently amended) A ~~palm fraction~~ margarine and spread fat blend according to claim

1, wherein said hard palm oil fraction has a melting point higher than 57 ~~Deg C~~ degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content ~~of~~ of greater than 75% at 40 ~~Deg C~~ degrees Celsius.

6. (currently amended) A ~~process~~ method of producing a hard palm oil fraction, comprising selectively dry fractionating palm ~~fat/~~ palm oil or its a stearin fraction thereof by melt crystallization process, ~~said to harvest the hard palm oil fraction with~~ having a C16 carbon chain residue level of of greater than 75%, with a total unsaturation level ~~of~~ of less than 15%.

7. (currently amended) A ~~process~~ method of producing a hard palm oil fraction according to claim 6, ~~comprising which comprises~~ dry fractioning palm ~~fat/oil~~ using a two step melt crystallization process, the first step being performed between 20-25 ~~degrees Celsius~~ Deg C, to obtain a medium hard palm oil fraction and the medium hard palm oil fraction is then once again dry fractionated between 45-55 ~~Deg C~~ degrees Celsius, ~~depending of the iodine number of the first dry fraction,~~ to harvest very hard palm oil fraction rich in C 16 fatty acids.

8. (currently amended) A ~~process~~ method of producing a hard palm oil fraction according to claim 6 7, ~~comprising which comprises~~ separating the palm fraction in the second fractionation step in high pressure membrane type filter wherein a pressure of 10-35 bar is used to inflate the membrane so as to remove the liquid fraction occluded in the hard palm oil fraction fat, ~~thus eliminating the requirement of solvent fraction method.~~

9. (currently amended) A margarine and spread fat blend and spread made according to ~~in accordance with~~ claim 1 wherein the hard structural fat is produced by an interesterification reaction of a hard palm oil fraction with a hard palm kernel oil fraction, the resultant hard fat is

not further fractionated but used as such as a trans free hard structural fat, ~~thus eliminating a further processing which in turn result in high yield of the structural fat at a lower cost.~~

10. (Cancelled)

11. (represented) A margarine and spread fat blend according to claim 9, wherein said trans free hard structural fat has a trisaturated triglyceride H<sub>3</sub> type less than 25% wherein "H" denotes saturated fatty acid residues with carbon numbers greater than or equal to 16.

12. (currently amended) A margarine and spread fat blend ~~process for producing the margarine blend and spread of~~ according to claim 1, ~~wherein comprising~~ subjecting a hard palm oil fraction having a C-16 level of higher than 75% is subjected to random chemical interesterification with a hard palm kernel oil fraction, and then subjecting the interesterified mixture to a physical fractionation method of panning and pressing at a temperature of less than 30 Deg C so as degrees Celsius to yield minimum 75% level of extra hard structural fat.

13. (new) A margarine and spread fat blend according to claim 1, wherein said hard palm oil fraction is produced by:

- selectively dry fractionating the said palm oil or a stearin fraction thereof, by a melt crystallization process;
- separating said hard palm oil fraction from said dry fractionated palm oil in a high pressure membrane filter, such that said hard palm oil fraction has a C16 carbon chain fatty acid residue level of greater than 70%; and
- said hard palm oil fraction being produced without using solvent or detergent for fractionation.

14. (new) A margarine and spread fat blend according to claim 13, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising of crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter, said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

15. (new) A margarine and spread fat blend according to claim 13, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in a hard palm oil fraction collected in said high pressure membrane filter.

16. (new) A margarine and spread fat blend according to claim 14, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in a hard palm oil fraction collected in said high pressure membrane filter.

17. (new) A margarine and spread fat blend, according to claim 1, wherein:

- said trans free hard structural fat is produced by interesterification of a hard palm oil fraction having a C16 carbon chain fatty acid residue level of greater than 70% with a hard palm kernel oil fraction; and
- said trans free hard structural fat without further fractionation is blended with said liquid oil.

18. (new) A method of producing margarine and spread fat blend comprising:

- providing a liquid oil selected from the group consisting of sunflower oil, Canola oil, soy oil, peanut oil, rice bran oil, olive oil, safflower oil, corn oil and marine oil, or a blend of any of the above liquid oils;
- blending said liquid oils with a trans free hard structural fat, said margarine and spread fat blend comprising 60-95% of said liquid oil and 5-40% of said trans free structural fat;
- said trans free hard structural fat is made from selectively fractionated non-hydrogenated hard palm oil fraction, which is interesterified with lauric fat such as dry fractionated non-hydrogenated palm kernel oil fraction without using hydrogenation process and without using organic solvent or detergent for fractionation.

19. (new) A method of producing a margarine and spread fat blend according to claim 18, wherein the liquid oil blend has a high poly/mono unsaturated level such that in the

total fat blend the poly/mono unsaturation level exceeds 40%.

20. (new) A method of producing a margarine and spread fat blend according to claim 19, wherein said trans free hard structural fat is produced without using a hydrogenation process.

21. (new ) A method of producing a margarine and spread fat blend according to claim 18, wherein the said hard palm oil fraction has a C16 carbon chain residue greater than 70%.

22. (new) A method of producing a margarine and spread fat blend according to claim 18, wherein said hard palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

23. (new) A method of producing a margarine and spread fat blend according to claim 18, wherein said hard palm oil fraction is produced by:

- selectively dry fractionating the said palm oil or a stearin fraction thereof, by a melt crystallization process;
- separating said hard palm oil fraction from said dry fractionated palm oil in a high pressure membrane filter, such that said hard palm oil fraction has a C16 carbon chain fatty acid residue level of greater than 70%; and
- said hard palm oil fraction being produced without using solvent or

detergent for fractionation.

24. (new) A method of producing a margarine and spread fat blend according to claim 23, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising of crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter, said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

25. (new) A method of producing a margarine and spread fat blend according to claim 23, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in a hard palm oil fraction collected in said high pressure membrane filter.

26. (new) A method of producing a margarine and spread fat blend according to claim

24, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in a hard palm oil fraction collected in said high pressure membrane filter.

27. (new) A method of producing margarine and spread fat blend, according to claim 18, wherein:

- said trans free hard structural fat is produced by interesterification of a hard palm oil fraction having a C16 carbon chain fatty acid residue level of greater than 70% with a hard palm kernel oil fraction; and
- said trans free hard structural fat without further fractionation is blended with said liquid oil.

28. (new) A method of producing a margarine and spread fat blend, according to claim 27, wherein said trans free hard structural fat has a trisaturated triglyceride  $H_3$  type less than 25%, wherein "H" denotes saturated fatty acid residues with carbon numbers greater than or equal to 16.

29. (new) A method of producing a margarine and spread fat blend, according to claim 18, wherein:

- said hard palm oil fraction has a C16 level of greater than 75%;
- said hard palm oil fraction is interesterified with a hard palm kernel oil fraction by random chemical interesterification producing an



interesterified mixture; and

- said interesterified mixture is subjected to a physical fractionation method of panning and pressing at a temperature of less than 30 degrees Celsius to yield a minimum 75% level of extra hard structural fat.

30. (new) A trans free hard structural fat, comprising:

- a hard palm oil fraction consisting of selectively fractionated non-hydrogenated palm oil or a stearin fraction thereof, said hard palm oil having a C16 fatty acid residue level in the hard palm oil fraction is greater than 70%;
- interesterifying said hard palm oil fraction with lauric fat such as dry fractionated non-hydrogenated palm kernel oil fraction without using hydrogenation process and without subjecting the said trans free hard structural fat to further fractionation process;
- said trans free hard structural fat being produced without using organic solvent or detergent for fractionation.

31. (new) A trans free hard structural fat, according to claim 30, further comprising:

- said dry fractionating process is a melt crystallization process;
- separating a hard palm oil fraction in a high pressure membrane filter, such that said hard palm oil fraction has a C16 carbon chain fatty acid residue level of greater than 70%; and
- said hard palm oil fraction being produced without a solvent or detergent

in fractionation.

32. (new) A trans free hard structural fat, according to claim 30, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising of crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter, said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

33. (new) A trans free hard structural fat, according to claim 31, further comprising using a pressure of about 10 to 35 bar to inflate a membrane of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter.

34. (new) A trans free hard structural fat, according to claim 32, further comprising using a pressure of about 10 to 35 bar to inflate a membrane of said high pressure membrane

filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter.

35. (new) A trans free hard structural fat, according to claim 30, wherein said trans free hard structural fat is produced without using a hydrogenation process so that the trans free fatty acid residue produced during hydrogenation is eliminated.

36. (new) A trans free hard structural fat, according to claim 30, wherein said palm oil fraction has a C16 carbon chain fatty acid residue greater than 70%.

37. (new) A trans free hard structural fat, according to claim 30, wherein the palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

38. (new) A trans free extra hard structural fat, according to claim 30, comprising:

- said interesterified mixture is subjected to a physical fractionation method of panning and pressing at a temperature of less than 30 degrees Celsius to yield a minimum 75 % level of extra hard structural fat.

39. (new) A method of producing a trans free hard structural fat, comprising:

- selectively fractionating non-hydrogenated palm oil or a stearin fraction thereof such that the C16 fatty acid residue level in the hard palm oil fraction is greater than 70%;
- interesterifying said hard palm oil fraction with lauric fat such as dry fractionated non-hydrogenated palm kernel oil fraction without using hydrogenation process and without subjecting the said trans free hard structural fat to further fractionation process;
- said trans free hard structural fat being produced without using organic solvent or detergent for fractionation.

40. (new) A method of producing a trans free hard structural fat, according to claim 39, further comprising:

- said dry fractionating process is a melt crystallization process;
- separating a hard palm oil fraction in a high pressure membrane filter, such that said hard palm oil fraction has a C16 carbon chain fatty acid residue level of greater than 70%; and
- said hard palm oil fraction being produced without a solvent or detergent for fractionation.

41. (new) A method of producing a trans free hard structural fat, according to claim 40, further comprising:

- said hard palm oil fraction is produced using a two-step crystallization process;

- a first step of said two-step crystallization process comprising of crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter, said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

42. (new) A method of producing a trans free hard structural fat, according to claim 40, further comprising using a pressure of about 10 to 35 bar to inflate a membrane of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter.

43. (new) A method of producing a trans free hard structural fat, according to claim 39, wherein said trans free hard structural fat is produced without using a hydrogenation process so that the trans free fatty acid residue produced during hydrogenation is eliminated.

44. (new) A method of producing a trans free hard structural fat, according to claim 39, wherein said palm oil fraction has a C16 carbon chain fatty acid residue greater than 70%.

45. (new) A method of producing a trans free hard structural fat, according to claim 39, wherein the palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

46. (new) A method of producing trans free extra hard structural fat according to claim 38, comprising:

said interesterified mixture is subjected to a physical fractionation method of panning and pressing at a temperature of less than 30 degrees Celsius to yield a minimum 75% level of extra hard structural fat.

47. (new) A hard palm oil fraction, comprising:

- said hard palm oil fraction having a C16 carbon chain residue level is greater than 70%;
- said hard palm oil fraction being produced by cooling a palm oil stearin fraction to below 30 degrees Celsius to form a hard slab; and
- pressing said slab in a high pressure hydraulic press to recover a hard palm oil fraction.

48. (new) A hard palm oil fraction, comprising:

- said hard palm oil fraction having a C16 carbon chain residue level is greater than 70%;
- said hard palm oil fraction being produced by selectively dry fractionating palm oil or a stearin fraction thereof, by a melt crystallization process;

- separating the hard palm oil fraction from said dry fractionated palm oil fraction, in a high pressure membrane filter; and
- subjecting the hard palm oil fraction collected in the high pressure membrane filter to a pressure of about 10 to 35 bar by inflating a membrane of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter.

49. (new) A hard palm oil fraction, according to claim 48, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter;
- said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

50. (new) A hard palm oil fraction, according to claim 49, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter so as to enrich the C16 fatty acid residue in the said hard palm oil fraction.

51. (new) A hard palm oil fraction, according to claim 47, wherein the said hard palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting pointing spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

52. (new) A hard palm oil fraction, according to claim 48, wherein the said hard palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting pointing spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

53. (new) A method of producing a hard palm oil fraction, comprising:

- cooling a palm oil stearin fraction to below 30 degrees Celsius to form a hard slab;
- pressing said slab in a high pressure hydraulic press to recover a hard palm oil fraction; and
- said hard palm oil fraction having a C16 carbon chain residue level is greater than 70%.



54. (new) A method of producing a hard palm oil fraction, comprising:

- selectively dry fractionating palm oil or a stearin fraction thereof, by a melt crystallization process;
- separating the said hard palm oil fraction from said dry fractionated palm oil fraction, in a high pressure membrane filter;
- subjecting the hard palm oil fraction collected in the high pressure membrane filter to a pressure of about 10 to 35 bar by inflating a membrane of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter; and
- said hard palm oil fraction having a C16 carbon chain residue level greater than 70%.

55. (new) A method of producing a hard palm oil fraction, according to claim 54, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising

crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter;

- said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

56. (new) A method of producing a hard palm oil fraction, according to claim 55, further comprising using a pressure of about 10 to 35 bar to inflate membranes of said high pressure membrane filter to remove a liquid fraction occluded in the hard palm oil fraction collected in said high pressure membrane filter so as to enrich the C16 fatty acid residue in the said hard palm oil fraction.

57. (new) A method of producing a hard palm oil fraction, according to claim 55, wherein the said hard palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

58. (new) A method of producing a hard palm oil fraction, according to claim 56, wherein the said hard palm oil fraction has a melting point higher than 57 degrees Celsius and can be flaked for easy handling because of its high melting point in spite of not being required to undergo hydrogenation and has a solid fat content of greater than 75% at 40 degrees Celsius.

59. (new) A method of producing a hard palm oil fraction, comprising selectively dry fractionating palm oil or a stearin fraction thereof by melt crystallization process, said hard palm oil fraction having a C16 carbon chain residue level of greater than 70%, with a total unsaturation level of less than 15%.

60. (new) A method of producing a hard palm oil fraction according to claim 59, comprising dry fractioning palm oil using a two step melt crystallization process, the first step being performed between 20-25 degrees Celsius, to obtain a medium hard palm oil fraction and

the medium hard palm oil fraction is then once again dry fractionated between 45-55 degrees Celsius, to harvest very hard palm oil fraction rich in C 16 fatty acids.

61. (new) A hard palm oil fraction, comprising:

- said hard palm oil fraction having a C16 carbon chain residue level is greater than 70%;
- said hard palm oil fraction being produced by selectively dry fractionating palm oil or a stearin fraction thereof, by a melt crystallization process.

62. (new) A hard palm oil fraction, according to claim 61, further comprising:

- said hard palm oil fraction is produced using a two-step melt crystallization process;
- a first step of said two-step melt crystallization process comprising crystallizing said palm oil at a temperature between about 20 and 25 degrees Celsius and filtering a crystallized slurry of said palm oil through a membrane filter, said first step producing a medium hard palm oil fraction; and
- a second step of said two-step melt crystallization process comprising crystallizing said medium hard palm oil fraction at a temperature between about 45 to 55 degrees Celsius and filtering a crystallized slurry of said medium hard palm oil fraction through a high pressure membrane filter;
- said second step producing a very hard palm oil fraction with a C16 carbon chain fatty acid residue level of greater than 70%.

In the Written Description:

Please replace page 4 of the specification with the enclosed replacement page.

fraction is selectively dry fractionated by melt crystallization process to harvest the hard palm fraction with C16 level of > 75%, preferably > 83% with a total unsaturation level of >15% preferably less than 10%.

The palm fat/oil is dry fractionated using a two-step melt crystallization process, the first step being performed between 20-25 degrees Celsius, preferably between 22-24 degrees Celsius, to obtain a medium hard palm fraction. The medium hard palm fraction is then once again dry fractionated between 45-55 degrees Celsius, more preferably 49-52 degrees Celsius (depending of the iodine number of the first dry fraction) to harvest very hard palm fraction rich in C16 fatty acids.

The palm fraction in the second fractionation step is separated in a high pressure membrane type filter wherein a pressure of 10-35 bar (preferably > 20 bar, most preferably > 30 bar) is used to inflate the membrane so as to remove the liquid fraction occluded in the hard fat, thus eliminating the requirement of solvent fraction method. This does not exclude use of high pressure hydraulic pressing of the cooled slab of palm oil fraction to obtain the same desired hard palm fat suitable for the manufacture of hard structural fat.

The hard structural fat is produced by interesterification reaction of hard palm fraction with hard palm kernel fraction, the resultant hard fat is not further fractionated but used as such as a hard structural fat, thus eliminating further processing a by-product disposal, resulting in a high yield of the structural fat at a low cost.

The hard structural fat is produced by interesterification reaction without having to further undergo fractionation process, thus eliminating the disposal problems of by-product fractions associated with such processing to obtain hard structural fat

Preferably, the hard structural fat is produced by interesterification reaction of hard palm fraction with hard palm kernel fraction such a way that the hard structural fat has a trisaturated triglyceride of H<sub>3</sub> type of C16 and above is less than 25% preferably less than 20%.